*PATENT*

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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| In re application of: **Gallagher et al.** | § | |
| | § | Group Art Unit: **2114** |
| Serial No. **10/616,848** | § | |
| | § | Examiner: **Truong, Loan** |
| Filed: **July 10, 2003** | § | |
| | § | |
| For: **Method and Apparatus for** | § | |
| **Managing Adapters in a Data** | § | |
| **Processing System** | | |

**Commissioner for Patents**
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**35525**
PATENT TRADEMARK OFFICE
CUSTOMER NUMBER

## REPLY BRIEF (37 C.F.R. 41.41)

This Reply Brief is submitted in response to the Examiner's Answer mailed on June 21, 2007.

No fees are believed to be required to file a Reply Brief. If any fees are required, I authorize the Commissioner to charge these fees which may be required to IBM Corporation Deposit Account No. 09-0447.

## RESPONSE TO EXAMINER'S ANSWER

The Examiner's answer of June 21, 2007 contains several incorrect assertions. Therefore, this reply brief is needed.

## I. The Proposed Combination of *Mahalingham* and *Kurapati* Does Not Teach all of the Features of Claim 1

The Examiner rejects all pending claims under 35 U.S.C. § 103 as obvious in view of *Mahalingham et al.*, <u>Means for Allowing Two or More Network interface Controller Cards to Appear as One Card to an Operating System</u>, U.S. Patent 6,314,525 (November 6, 2001) (hereinafter "*Mahalingham*") and of *Kurapati et al.*, <u>Data Replication for Redundant Network Components</u>, U.S. Patent 7,007,190 (February 28, 2006) (hereinafter "*Kurapati*."). In the appeal brief, Appellants proved that the combination of these references does not teach or suggest all of the features of claim 1. Nevertheless, in the Examiner's answer, the Examiner states that:

> Applicant stated that Examiner admits that Mahalingham does not teach the claimed feature of "queuing data in a data queue used by the primary adapter" and "wherein the standby adapter uses the data in the data queue". Examiner would like to clarify that Mahalingham does in fact disclosed the primary and secondary adapter comprising a queue used by each of the primary and secondary adapter (*fig. 11, 1356b, 1358b*) but admits that it's not the same data queue as presented in applicant's invention. The process of queuing data is taught by Kurapati shared memory queue. Applicant also stated that the data queues in Kurapati are not used in any kind of adapter, primary or standby. As disclosed in the final office action, the adapters, primary and standby, are taught by Mahalingham primary and secondary NIC (network interface card) having their own respective queue. Kurapati reference is presented to cure the deficiencies of queuing data used by a first device for the used of a second device in the case of a failure. Kurapati cure this deficiency by disclosing a data replicator using the replicate data stored in a shared memory database from a network component to a mate network component *(col. 2 lines 15-20)*. Kurapati discloses the network component and a mate network component as the active and standby network components (fig. *10, 120, 12b*) replicating data stored in the shared memory (fig. *13a, 51a*). Finally, applicant stated that Kurapati teaches of a network component switching form active mode to standby mode but does not disclosed an adapter. Examiner would like to clarify again that Mahalingham and not Kurapati teach the primary and secondary adapters.

Examiner's answer of June 21, 2007, pp. 13-14 (emphasis in original).

The Examiner clarifies that the Examiner believes that *Mahalingham* discloses primary and secondary adapters having queues, citing the NICs (network interface cards) as support for this assertion. The Examiner further clarifies that the Examiner believes that the queues in *Mahalingham* are not the same data queues as presented in the invention of claim 1. The Examiner then asserts that *Kurapati* is presented to cure the deficiencies in *Mahalingham* of queueing data used by a first device for the use of a second device in case of failure. The Examiner asserts that *Kurapati* teaches this feature by replicating data stored in a shared database from a network component to a mate network component.

However, the Examiner's "clarifications" instead further delineate the differences between the proposed combination of *Mahalingham* and *Kurapati* vis-à-vis claim 1. The Examiner states that *Mahalingham* is used to teach the claimed features of primary and secondary adapters having queues. However, *Mahalingham* provides that:

> The present invention provides a method and an apparatus for allowing a plurality of network interface controllers (NICs) to appear as a single NIC to an operating system. *This method and apparatus is realized externally to the NIC driver software, and thus does not require NIC drivers to be modified. The present invention also operates independently of operating system, NIC driver software, NIC drivers and NIC hardware.* Consequently, the present invention is compatible with a wide range of operating systems and NICs. One embodiment of the present invention operates at the MAC level and lower, thus avoiding the complexity of providing software support for higher layer protocols. However, providing support at the MAC level and lower makes it difficult to perform inbound load sharing. This is because protocols such as IPX use addresses and packet headers to direct reply packets. Hence, return traffic is directed back to the originating NIC regardless of whether the originating NIC is heavy loaded or not. However, 60% to 80% of all traffic on a server is outbound because workstations typically read files from a server in a direction that is outbound from the server. Hence, load sharing for outbound traffic will significantly improve overall system performance even if it is not possible for inbound traffic.

*Mahalingham*, Abstract (emphasis supplied). In contrast, claim 1 is as follows (emphasis supplied):

> 1.   A method *in a device driver* for handling a failure of a primary adapter in a data processing system, the method comprising:
>        queuing data in a data queue used by the primary adapter;

> monitoring the primary adapter for the failure; and
> responsive to detecting the failure, switching to a standby adapter
> handled by the device driver, wherein the standby adapter uses the data in
> the data queue.

*Mahalingham* provides that *Mahalingham*'s disclosures and methods are performed *externally to the network interface card drivers*. In stark contrast, claim 1 requires a method *in a device driver*. These two features are directly opposite each other. Thus, if the Examiner relies on *Mahalingham* for teaching primary and standby adaptors as claimed, and relies on *Kurapati* for teaching failover using data replication, then in the Examiner's proposed combination - *considered as a whole* - the resultant method would take place *externally* to the primary and standby adaptor drivers, *not in a device driver*, as required by claim 1. Therefore, again, the proposed combination of *Mahalingham* and *Kurapati*, considered as a whole, does not teach all of the features of claim 1 - *even if the examiner's assertions are assumed to* be true. Accordingly, the Examiner failed to state a *prima facie* obviousness rejection against claim 1 or any other claim in this grouping of claims. (The prior art reference (or references when combined) must teach or suggest all the claim limitations. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)).

Additionally, as pointed out in the appeal brief, the proposed combination of *Mahalingham* and *Kurapati*, considered as a whole, does not teach or suggest all of the features of claim 1 for other reasons. For example, *Mahalingham* and *Kurapati* do not teach, "responsive to detecting the failure, switching to a standby adapter handled by the device driver, wherein the standby adapter uses the data in the data queue." Accordingly, under the standards of *In re Royka*, the Examiner failed to state a *prima facie* obviousness rejection against claim 1 or any other claim in this grouping of claims.

## II.      No Proper Reason Exists To Combine the References Under the Standards of *KSR Int'l.*

In addition, the Examiner failed to state a *prima facie* obviousness rejection against claim 1 because the Examiner failed to state a proper reason to combine the references under the standards of *KSR Int'l*. The Examiner bears the burden of establishing a *prima facie* case of obviousness based on prior art when rejecting claims under 35 U.S.C. § 103. *In re Fritch*, 972 F.2d 1260, 23 U.S.P.Q.2d 1780 (Fed. Cir. 1992). Often, it will be necessary for a court to look to interrelated

teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. *KSR Int'l. Co. v. Teleflex, Inc.*, No. 04-1350 (U.S. Apr. 30, 2007). Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *Id.* (citing *In re Kahn*, 441 F.3d 977, 988 (CA Fed. 2006)).

In the case at hand, no rational underpinning exists to support the legal conclusion of obviousness under the standards of *KSR Int'l*. Nevertheless, the Examiner states that:

> Applicant stated that Mahalingham is related to software and not to the claimed primary adapters, which are hardware. It is clearly shown in Fig. 11 of Mahalingham that the NIC *(network interface card)* utilizing software instructions and processes to appear as a single NIC to an operating system but in no way to one skill in the art to interpret as not a hardware component. Furthermore, applicant stated that Mahalingham has no need for data replication among software components and the fact that Kurapati teaches an advantage regarding data replication has nothing to do with the methods and devices taught in Mahalingham. Mahalingham reference is drawn to a system providing a seamless redundant failover should a primary card fails. Kurapati reference is drawn to replicate redundant data failover seamlessly should a fault occur to a primary component to prevent data loss. The two references operate in the same field of endeavor to provide failover in a redundant system. Kurapati provides advantageous of providing redundant data loss thus it would be advantageous to combine the references.

Examiner's answer of June 21, 2007, p. 14 (emphasis in original).

The Examiner asserts that *Mahalingham* is drawn to a system providing a seamless redundant failover should a primary card fail. The Examiner further asserts that *Kurapati* is drawn to replicate redundant data failover should a fault occur. The Examiner then asserts that the two references operate in the same field of endeavor and that *Kurapati* provides the advantage of providing "redundant data loss," though Appellants assume that the Examiner refers to protection against data loss due to the failure of the primary adaptor.

However, the Examiner's assertions are directly contrary to the teachings of the references, considered as a whole. As established above, *Mahalingham* teaches that the failover methods occur

*external to the network card drivers and the network card hardware.* In stark contrast, claim 1 requires that the method take place *in a device driver.*

One of ordinary skill would immediately recognize that *Mahalingham*'s teachings are performed *external* to the device drivers. Therefore, one of ordinary skill would have no reason to combine the teachings of *Kurapati* to achieve an invention that takes place *in a device driver*, as required by claim 1. For this reason, no rational underpinning has been stated, or can be stated, to support the obviousness rejection. Thus, *arguendo*, even if the proposed combination of references did teach all the features of claim 1, no rational reason exists why one of ordinary skill could combine *Mahalingham* and *Kurapati* to achieve the invention of claim 1. Accordingly, the Examiner failed to state a proper reason to combine the references under the standards of *KSR Int'l.* For this reason, the Examiner failed to state a *prima facie* obviousness rejection against claim 1 or any other claim in this grouping of claims.

Additionally, as provided in the appeal brief, no reason exists to combine the references to achieve the invention of claim 1. Therefore, again, the Examiner failed to state a *prima facie* obviousness rejection against claim 1 or any other claim in this grouping of claims.

## III. No Proper Reason Exists To Combine the References Because Each Reference Represents a Complete Solution to the Problem that Each Solves.

In response to the fact that no proper reason exists to combine the references because each reference represents a complete solution to the problem that each solves, the Examiner replies that:

> Applicant stated again that Mahalingham has no need for redundant software components to exchange replicated information because Mahalingham reroutes the same information packet from one adapter to another. Because Mahalingham has no need for replicated information and are comfortable using two separate queues for each network component does not prohibit one skilled in the art to combine the queuing of Kurapati. This argument would be similar to one in the communication technology arguing that a conventional telephone has no need to remove the wire from the handset. Although there would be no need, this does not prohibit the motivation to combination wireless technology and remove the wire from the handset to produce a wireless telephone.

Examiner's answer of June 21, 2007, p. 15 (emphasis in original).

The Examiner asserts that Appellant's argument is similar to arguing that a conventional

telephone has no need to remove a wire from the handset. The Examiner asserts that although there would be no need, the lack of a need does not prohibit the motivation to combine wireless technology and remove the wire from the handset to produce a wireless telephone.

However, the Examiner's argument ignores a whole host of technical and legal issues that are relevant to the proposed hypothetical. For example, if no one in the past had created a wireless telephone, then no basis would exist to assume that the feat was technically feasible, because prior telephones *required* wires to operate. Today, everyone knows that wireless telephones exist; however, the teachings required to implement a wireless telephone is well known. Thus, today an application to a basic wireless phone would be anticipated by known art, a fact which renders any discussion of obviousness moot. However, the question before the Board is the obviousness of the claims; therefore, the Examiner cannot assume in the hypothetical that "removing the wire" would be obvious. Such thinking reflects the entire concept of impermissible hindsight, in which the teachings of the application are used to produce a motivation to modify or combine references to achieve the claimed invention.

Additionally, the fact that a motivation is not *prohibited* does not mean that the motivation *exists*, or that the motivation has a *rational underpinning*, as required by *KSR Int'l*. As shown in the appeal brief, *Mahalingham* has no need for redundant software components because *Mahalingham* reroutes the same information packet from one adapter to another. Thus, when the particular references are considered together as a whole, one of ordinary skill would have no reason to combine *Mahalingham* with any reference, much less *Kurapati*, to achieve the invention of claim 1. For this reason, a rational underpinning cannot be stated for combining the references to achieve the invention of claim 1. Therefore, under the standards of *KSR Int'l*, the Examiner failed to state a *prima facie* obviousness rejection against claim 1 or any other claim in this grouping of claims.

## CONCLUSION

As shown above, the Examiner has failed to state a *prima facie* obviousness rejection against any of the claims. Therefore, Appellants request that the Board of Patent Appeals and Interferences reverse the rejections. Additionally, Appellants request that the Board direct the Examiner to allow the claims.

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